

withdrawal of the objection to claim 3.

Claims 2 and 3 are rejected under 35 U.S.C § 102(b) as being anticipated by or in the alternative under 35 U.S.C. 103(a) as being obvious over Kampe et al. (U.S. Patent No. 4, 602, 426). The Office Action takes the position that Kampe teaches or suggests all the features of claims 2 and 3. By this amendment and the following remarks, it is respectfully submitted that claims 2 and 3 recite subject matter that is neither taught nor suggested by the applied prior art. Accordingly, Applicants request consideration of the rejected claims.

Claim 2 is directed to an electrode for an electric double-layer capacitor, which includes an active material and a conductive material and which is bonded to a current collector. The concentration of the conductive material in a surface portion of the electrode bonded to the current collector is higher than the concentration of a conductive material in an internal portion of the electrode.

The essence of the present invention, as recited in claim 2, is an electrode wherein the concentration of the conductive material in a surface portion of the electrode bonded to the current collector is higher than the concentration of a conductive material in an internal portion of the electrode. The claimed invention provides the benefit of increasing the electrostatic capacity of an electric double-layer capacitor and enhancing the durability of the capacitor, thereby providing a lengthening of the lifespan of the capacitor. Thus, it is respectfully submitted that the prior art fails to disclose or suggest the features of Applicants' invention, and therefore fails to provide the advantages which are provided by the present invention. .

Kampe is directed to a method of producing a gas diffusion electrode. Kampe also discloses a gas diffusion electrode comprising a electrically conductive current collector, an electrochemical active material, a wet-proofing agent and a pore forming agent. Kampe further discloses that various electrically conductive materials may be used. However, Kampe does not teach or suggest an electrode wherein the concentration of the conductive material in a surface portion of the electrode bonded to the current collector is higher than the concentration of a conductive material in an internal portion of the electrode. Specifically, Kampe discloses that the composition gradient of the electrode is present through the thickness of the electrode. (See Column 3 Lines 57). Further, Kampe discloses that the collector is contiguously associated with at least one active mixture layer.

Thus, in other words, the superimposed layering of the dry, finely divided mixtures results in an active material composition gradient which provides a progressive change in average concentration between adjacent layers and provides a transition zone between adjacent layers in which there is a smooth composition gradient between the average composition of the adjacent layers. In contrast, the claimed invention, recites in part that the concentration of the conductive material in a surface portion of the electrode bonded to the current collector is higher than the concentration of a conductive material in an internal portion of the electrode. Additionally, Kampe is directed to primary batteries whereas the claimed invention is directed to electric double layer capacitors. Thus, the teachings of the reference is in a non-analogous art. Therefore, it is respectfully submitted that Kampe neither teaches nor suggests all the features of the claimed invention. Accordingly, Applicants respectfully request the withdrawal of the rejection of claim 2.

Claim 3 depends on claim 2 and for at least the reasons mentioned above, it is respectfully submitted that claim 3 likewise recites subject matter that is neither taught nor suggested by the applied prior art. As a result, Applicants request the withdrawal of the rejection of claim 3.

Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshida et al. (U.S. Patent No. 5, 450,279) in view of Kampe et al (U.S. Patent No. 4,602,426). The Office Action takes the position that the combination of Yoshida and Kampe teach or suggest all the features recited in claims 2 and 3. It is respectfully submitted that the claims 2 and 3 recite subject matter that is neither taught nor suggested by the applied prior art.

Yoshida is directed to an electric double layer capacitor. Yoshida discloses the use of activated carbon in a powder or a fiber state for bonding the combined body to the current collectors. However Yosida, as admitted by the Office Action, does not disclose the gradient composition of the conductive layer. Specifically, Yoshida does not teach or suggest an electrode, which includes an active material and a conductive material and which is bonded to a current collector, wherein the concentration of the conductive material in a surface portion of the electrode bonded to the current collector is higher than the concentration of a conductive material in an internal portion of the electrode.

Further, it is respectfully submitted that Kampe does not cure the deficiencies of

Yoshida. Therefore the combination of the references do not teach or suggest the features of the claimed invention. As mentioned above, although Kampe discloses a composition gradient that is present through the thickness of the electrode, Kampe does not teach or suggest that the concentration of the conductive material in a surface portion of the electrode bonded to the current collector is higher than the concentration of a conductive material in an internal portion of the electrode. Furthermore, it is submitted that it is not obvious to combine these references since the references relate to non-analogous art. In particular, Kampe is directed to primary batteries rather than electric double layer capacitors. Therefore, it is submitted that the combination applied references neither teach or suggest all the features recited in claims 2 and 3. Accordingly, Applicants respectfully request the withdrawal of the rejection of claims 2 and 3.

In view of the distinctions discussed above, withdrawal of the rejections to claims 2 and 3 is respectfully requested. Applicants submit that claims 2 and 3 recite subject matter that is clearly patentable. Therefore, Applicants submit that the application is now in condition for allowance with claims 2 and 3 contained therein. Should the Examiner believe the application is not in condition for allowance, the Examiner is invited to contact Applicant's undersigned attorney at the telephone number listed below.

In the event this paper is not considered to be timely filed, Applicants respectfully petition for an appropriate extension of time. The Commissioner is authorized to charge payment for any additional fees which may be required with respect to this paper to Counsel's Deposit Account 01-2300.

Respectfully submitted,

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MARKED-UP COPY OF CLAIMS

3. (Amended) An electrode for an electric double-layer capacitor according to claim 2, wherein said active material is fibrous [maso-phase] meso-phase activated carbon.